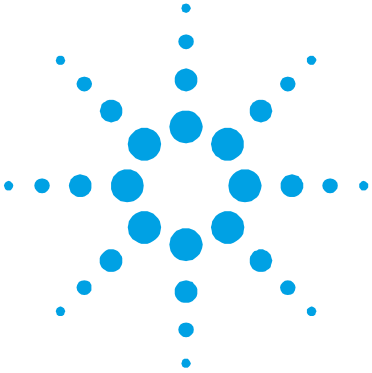

MicroVac Controller

Models
929-0200
929-0201

Manuale di Istruzioni
Bedienungshandbuch
Notice de Mode D'Emploi
User Manual

87-900-089-01 (G)
05/2011

Agilent Technologies

Notices

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CAUTION

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WARNING

A WARNING notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a WARNING notice until the indicated conditions are fully understood and met.

MicroVac Controller

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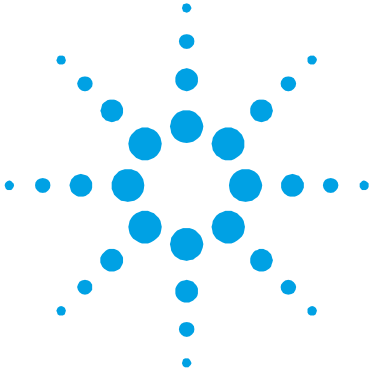

1 Istruzioni per l'uso

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Traduzione delle istruzioni originali

Informazioni Generali

Questa apparecchiatura è destinata ad uso professionale. L'utilizzatore deve leggere attentamente il presente manuale di istruzioni ed ogni altra informazione addizionale fornita dalla Agilent prima dell'utilizzo dell'apparecchiatura. La Agilent si ritiene sollevata da eventuali responsabilità dovute all'inosservanza totale o parziale delle istruzioni, ad uso improprio da parte di personale non addestrato, ad interventi non autorizzati o ad uso contrario alle normative nazionali specifiche. Il MicroVac è un alimentatore ad alta tensione e bassa potenza, utilizzato per alimentare le pompe Ioniche, è dotato di un microprocessore utilizzato per pilotare il pannello frontale.

Oltre al connettore per alimentare la pompa, è presente anche un spinotto che svolge la funzione di Interlock, se questo non è inserito sul connettore di uscita non è presente alcuna tensione.

Nei paragrafi seguenti sono riportate tutte le informazioni necessarie a garantire la sicurezza dell'operatore durante l'utilizzo dell'apparecchiatura. Informazioni dettagliate sono fornite nella sezione "Technical Information".

Questo manuale utilizza le seguenti convenzioni:

AVVERTENZA! **I messaggi di avvertenza attirano l'attenzione dell'operatore su una procedura o una pratica specifica che, se non eseguita in modo corretto, potrebbe provocare gravi lesioni personali.**

NOTA Le note contengono informazioni importanti estrapolate dal testo.

ATTENZIONE! I messaggi di attenzione sono visualizzati prima di procedure che, se non osservate, potrebbero causare danni all'apparecchiatura.

Immagazzinamento

Durante il trasporto e l'immagazzinamento dei MicroVac devono essere soddisfatte le seguenti condizioni ambientali:

- temperatura: da -20 °C a +70 °C
- umidità relativa: 0 – 95 % (non condensante)

Preparazione per l'installazione

Il controller viene fornito in un imballo protettivo speciale; se si presentano segni di danni, che potrebbero essersi verificati durante il trasporto, contattare l'ufficio vendite locale. Durante l'operazione di disimballo, prestare particolare attenzione a non lasciar cadere il modulo e a non sottoporlo ad urti.

Non disperdere l'imballo nell'ambiente. Il materiale è completamente riciclabile e risponde alla direttiva CEE 85/399 per la tutela dell'ambiente.

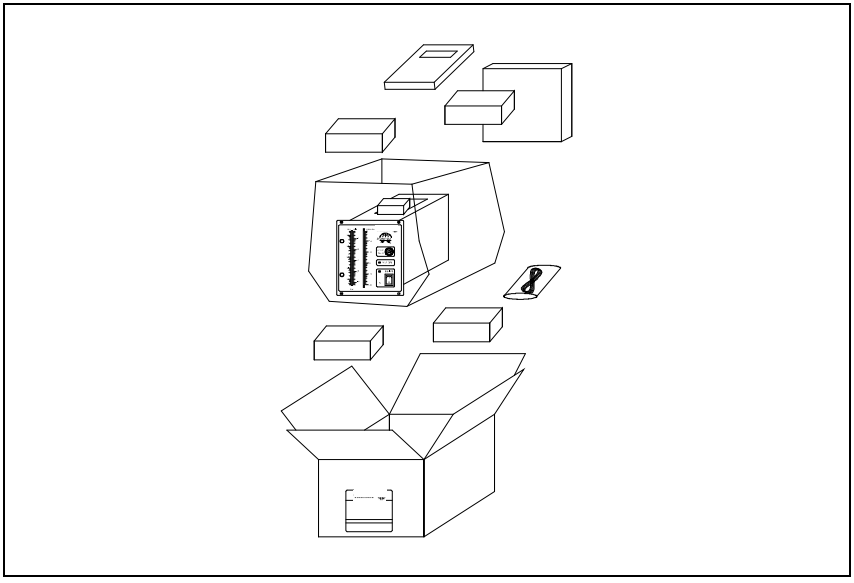


Figura 1 Imballo dei controller

Ogni controller giunge dalla Agilent predisposto per una certa tensione di alimentazione:

- il modello 929-0201 KINGS type High voltage connector (220 Vac, 50/60 Hz)
- il modello 929-0200 KINGS type High voltage connector (120 Vac, 50/60 Hz)

Installazione

AVVERTENZA!

Il controller è fornito di un cavo di alimentazione a tre fili con una spina di tipo approvato a livello internazionale. Utilizzare sempre questo cavo di alimentazione ed inserire la spina in una presa con un adeguato collegamento di massa onde evitare scariche elettriche. All'interno del controller si sviluppano alte tensioni che possono recare gravi danni o la morte. Prima di eseguire qualsiasi operazione di installazione o manutenzione del controller scollegarlo dalla presa di alimentazione.

NOTA Il controller deve essere installato all'interno di un apposito rack. In ogni caso occorre che l'aria di raffreddamento possa circolare liberamente intorno all'apparato. Non installare e/o utilizzare il controller in ambienti esposti ad agenti atmosferici (pioggia, gelo, neve), polveri, gas aggressivi, in ambienti esplosivi o con elevato rischio di incendio.

Durante il funzionamento è necessario che siano rispettate le seguenti condizioni ambientali:

- temperatura: da 0 °C a +45 °C
- umidità relativa: 0 – 95 % (non condensante).

Per il collegamento del controller con la relativa pompa utilizzare il cavo specifico del controller stesso.

Per gli altri collegamenti e l'installazione degli accessori opzionali, vedere la sezione "Technical Information".

Uso

In questo paragrafo sono riportate le principali procedure operative. Per ulteriori dettagli e per procedure che coinvolgono collegamenti o particolari opzionali, fare riferimento al paragrafo "Use" della sezione "Technical Information".

Prima di usare il controller effettuare tutti i collegamenti elettrici e pneumatici e fare riferimento al manuale della pompa collegata.

Comandi, Indicatori e Connettori del Controller

Di seguito sono illustrati sia il pannello frontale che quello posteriore con le interconnessioni.

Per maggiori dettagli fare riferimento alla sezione "Technical Information".

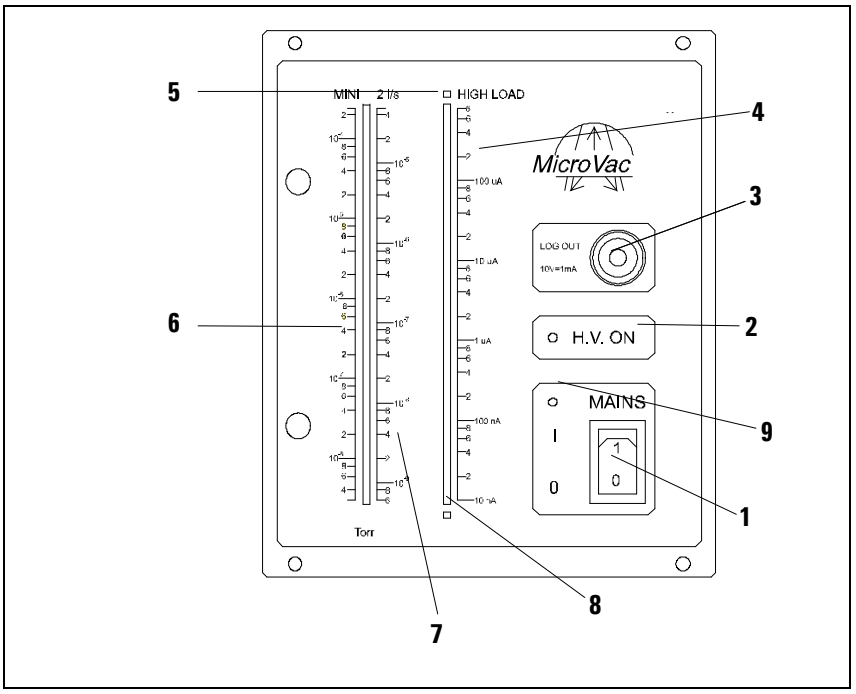


Figura 2 Pannello frontale del Controller

1	Interruttore ON/OFF principale
2	H. V. LED
3	Connettore di uscita segnale proporzionale alla corrente 10 V= 1 mA log
4	Scala in corrente (mA)
5	Led High Load, lampeggia quando la corrente assorbita dalla pompa raggiunge il valore di 1 mA
6	Scala di pressione per pompa Mini
7	Scala di pressione per pompa da 2 l/s
8	H. V. LED
9	Mains LED

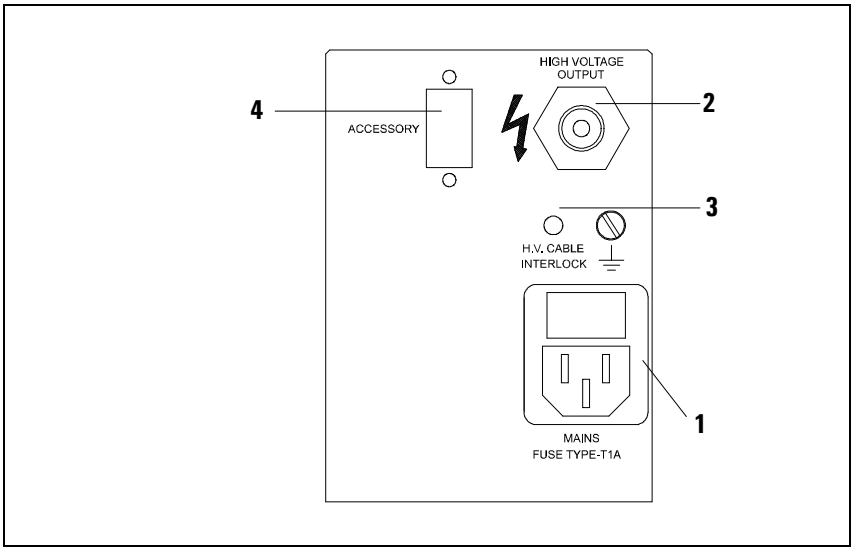


Figura 3 Pannello posteriore dei Controller

1	Modulo di ingresso dell'alimentazione per il Controller. Comprende il fusibile di protezione, il cambia-tensione, la presa di alimentazione di potenza ed il filtro EMC (non compreso nel blocco presa/cambia-tensione).
2	Connettore di uscita alta tensione per alimentazione pompa (tipo KINGS).
3	Connettore per abilitazione alta tensione in uscita (H.V. Cable Interlock).
4	Connettore di ingresso/uscita segnali per accessori.

Installazione Scala Graduata in Pascal o in Millibar Fornita come Accessorio

I controller della linea MicroVac vengono forniti con la scala della pressione espressa in Torr (Torricelli); è comunque possibile sostituirla con un'altra graduata in Pa (Pascal) o mBar (Millibar) (fornita come accessorio). Di seguito viene descritto come effettuare tale sostituzione.

Dopo aver estratto dalla confezione degli accessori l'etichetta che interessa, sovrapporre l'etichetta **A** a quella esistente, avendo cura di far coincidere i fori **C**; quindi fissarla utilizzando i fermi a pressione **B**.

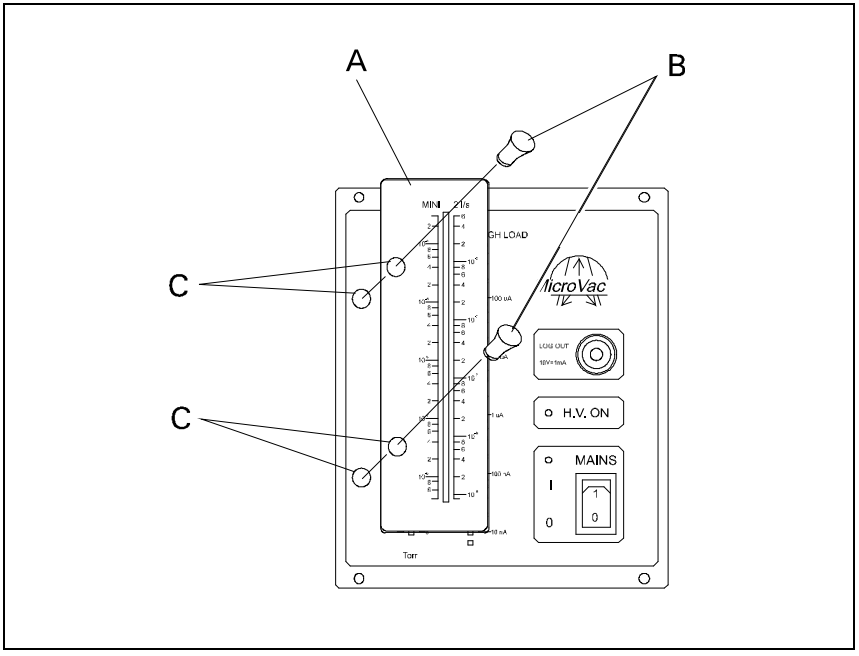


Figura 4 Installazione etichetta graduate in Pascal o in Millibar

Procedure di uso

Accensione del Controller

Per accendere il controller portare l'interruttore principale in posizione ON dopo aver inserito il cavo di alimentazione nella presa di rete.

Avvio della Pompa

La pompa si avvia solo se il controller è acceso e i due interlock (H.V. Cable e Remote ON/OFF) sono cortocircuitati. Per ulteriori informazioni fare riferimento alla sezione "Technical Information".

Arresto della Pompa

Per arrestare la pompa portare in posizione OFF l'interruttore principale posizionato sul pannello frontale.

Manutenzione

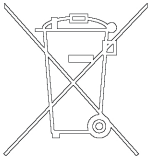
I controller della serie MicroVac non richiedono alcuna manutenzione. Qualsiasi intervento deve essere eseguito da personale autorizzato. In caso di guasto è possibile usufruire del servizio di riparazione Agilent o del "Agilent advance exchange service", che permette di ottenere un controller rigenerato in sostituzione di quello guasto.

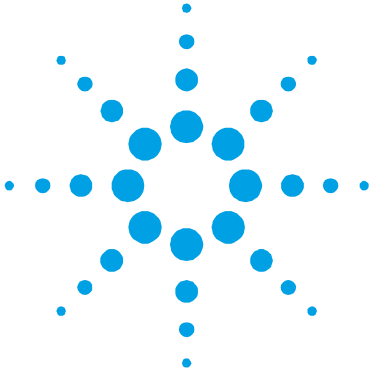
AVVERTENZA! **Prima di effettuare qualsiasi intervento sul controller scollegare il cavo di alimentazione.**

Qualora un controller dovesse essere rottamato, procedere alla sua eliminazione nel rispetto delle normative nazionali specifiche.

Smaltimento

Significato del logo "WEEE" presente sulle etichette.
Il simbolo qui sotto riportato è applicato in ottemperanza alla direttiva CE denominata "WEEE".
Questo simbolo **(valido solo per i paesi della Comunità Europea)** indica che il prodotto sul quale è applicato, NON deve essere smaltito insieme ai comuni rifiuti domestici o industriali, ma deve essere avviato ad un sistema di raccolta differenziata. Si invita pertanto l'utente finale a contattare il fornitore del dispositivo, sia esso la casa madre o un rivenditore, per avviare il processo di raccolta e smaltimento, dopo opportuna verifica dei termini e condizioni contrattuali di vendita.





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Übersetzung der Originalanleitungen

Allgemeines

Dieser Apparat ist für Fachbetriebe bestimmt. Vor Gebrauch sollte der Benutzer dieses Handbuch sowie alle weiteren mitgelieferten Zusatzdokumentationen genau lesen. Bei - auch nur teilweiser - Nichtbeachtung der enthaltenen Hinweise, unsachgemäßem Gebrauch durch ungeschultes Personal, nicht autorisierten Eingriffen und Mißachtung der einheimischen, hier zur Geltung kommenden Bestimmungen übernimmt die Firma Agilent keinerlei Haftung. Der MicroVac ist ein Hochspannungsnetzgerät niedriger Leistung, das zur Versorgung von Ionenpumpen verwendet wird. Er ist mit einem Mikroprozessor zur Steuerung des Bedienfelds ausgerüstet.

Außer des Steckers zur Versorgung der Pumpe gibt es auch einen Stift, der zur Verriegelung dient. Wenn dieser nicht auf dem Ausgangsstecker eingesteckt ist, liegt keine Spannung an.

In den folgenden Abschnitten sind alle erforderlichen Informationen für die Sicherheit des Bedieners bei der Anwendung des Geräts aufgeführt. Detaillierte technische Informationen sind im Anhang "Technical Information" enthalten.

In dieser Gebrauchsanleitung werden Sicherheitshinweise folgendermaßen hervorgehoben:

WARNUNG! **Die Warnhinweise lenken die Aufmerksamkeit des Bedieners auf eine bestimmte Prozedur oder Praktik, die bei unkorrekter Ausführung schwere Verletzungen hervorrufen können.**

VORSICHT! Die Vorsichtshinweise vor bestimmten Prozeduren machen den Bediener darauf aufmerksam, daß bei Nichteinhaltung Schäden an der Anlage entstehen können.

HINWEIS Die Hinweise enthalten wichtige Informationen, die aus dem Text hervorgehoben werden.

Lagerung

Beim Transport und bei der Lagerung der Controller müssen folgende klimatische Verhältnisse eingehalten werden:

- Temperatur: von -20 °C bis +70 °C
- Relative Luftfeuchtigkeit: 0 – 95 % (nicht kondensierend)

Vor der Installation

Der Controller wird mit einer speziellen Schutzverpackung geliefert. Eventuelle Transportschäden müssen der zuständigen örtlichen Verkaufsstelle gemeldet werden. Beim Auspacken vorsichtig vorgehen, damit der Controller nicht fällt oder Stößen ausgesetzt wird. Das Verpackungsmaterial muß korrekt entsorgt werden. Es ist vollständig recyclebar und entspricht der EG-Richtlinie 85/399 für Umweltschutz.

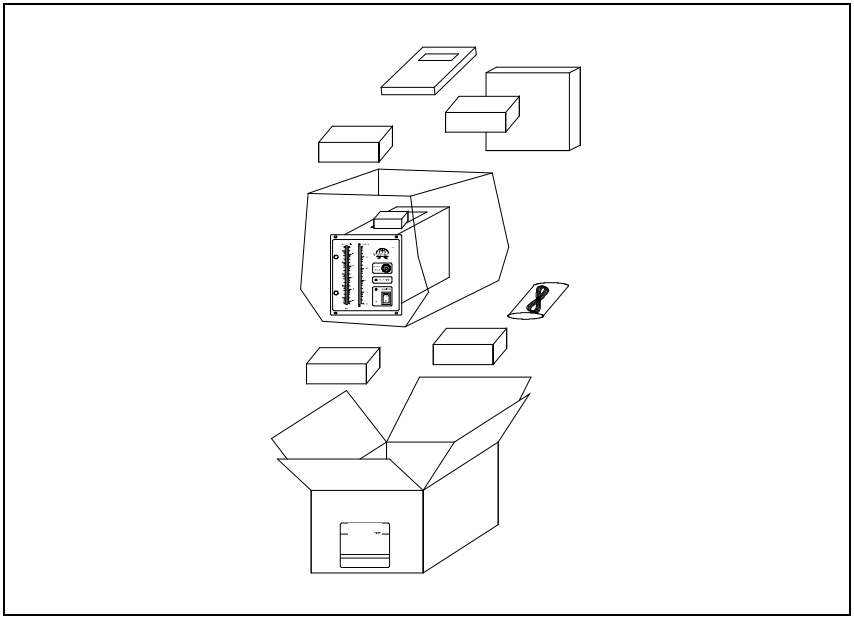


Abbildung 1 Verpackung der Controller

Alle Agilent-Controller sind für eine bestimmte Anschlußspannung ausgelegt:

- das Modell 929-0201 KINGS type High voltage connector (220 V, 50/60 Hz)
- das Modell 929-0200 KINGS type High voltage connector (120 V, 50/60 Hz)

Installation

WARNUNG!

Der Controller wird mit einem 3-adrigen Netzkabel geliefert, das mit einem den internationalen Normen entsprechenden Stecker ausgerüstet ist. Es sollte immer dieses Netzkabel benutzt werden, das an eine korrekt geerdete Steckdose anzuschließen ist, um Stromentladungen zu vermeiden. Im Inneren des Controllers entstehen hohe Spannungen, die schwere Schäden verursachen und lebensgefährlich sein können. Vor jedem Montage- bzw. Wartungseingriff muß deshalb der Netzstecker gezogen werden.

HINWEIS Der Controller kann auf einen Tisch oder ein Gestell montiert werden. In beiden Fällen muß auf die ungehinderte Zirkulation der Kühlluft im Bereich des Geräts geachtet werden. Der Controller darf nicht in Umgebungen installiert u/o benutzt werden, die Witterungseinflüssen (Regen, Frost, Schnee), Staub und aggressiven Gasen ausgesetzt sind und in denen Explosions- und erhöhte Brandgefahr besteht.

Beim Betrieb müssen folgende Umgebungs-bedingungen eingehalten werden:

- Temperatur: von +0 °C bis +45 °C
- Relative Luftfeuchtigkeit: 0 – 95 % (nicht kondensierend).

Für den Anschluß des Controllers an die Pumpe muß das zum Controller gehörende Kabel benutzt werden.

Andere Anschlüsse und die Installation optionalen Zubehörs ist im Abschnitt “Technical Information” beschrieben.

Gebrauch

In diesem Kapitel sind die wichtigsten Betriebsvorgänge aufgeführt. Für weitere Hinweise bezüglich Anschlüsse und Montage des bestellbaren Zubehörs siehe Kapitel "Use" im Anhang zu "Technical Information".

Vor Benutzung des Controllers sämtliche elektrischen und pneumatischen Anschlüsse ausführen, und die Betriebsanleitung der angeschlossenen Pumpe durchlesen.

Steuerungen, Anzeigen und Anschlüsse des Controllers

Nachstehend werden dass Bedienfeld des Controllers sowie die Anschlußfelder beschrieben. Für weitere Einzelheiten siehe "Technical Information".

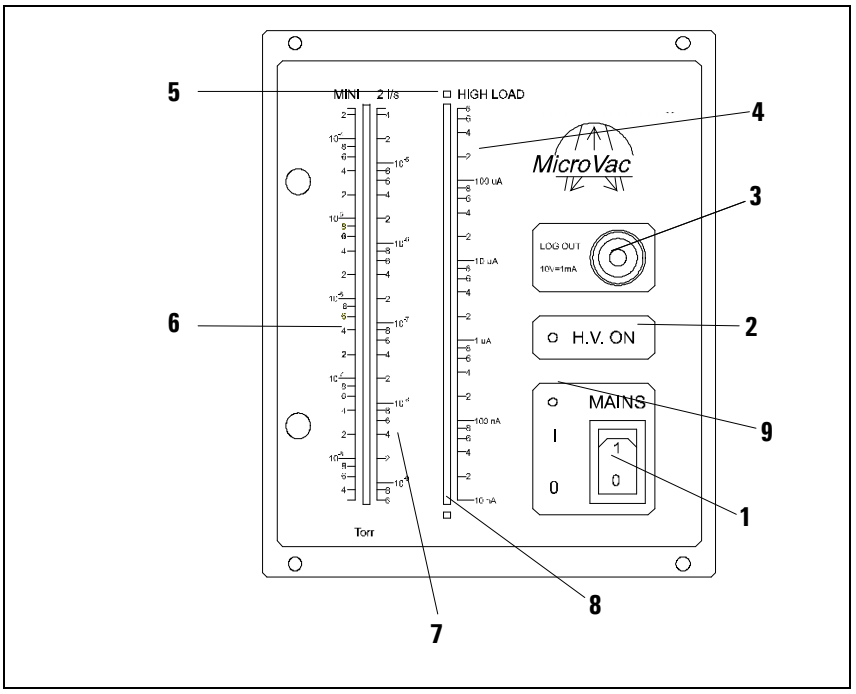


Abbildung 2 Bedienfeld der Controller

1	Hauptschalter ON/OFF
2	Hochspannungs- LED
3	Ausgangsstecker für Strom-proportionales Signal 10 V= 1 mA log
4	Stromskala (mA)
5	Hochlast-LED, blinkt, wenn der von der Pumpe aufgenommene Strom 1 mA erreicht
6	Druckskala für Mini-Pumpe
7	Druckskala für Pumpe mit 2 l/s
8	Hochspannungs-LED
9	Netz- LED

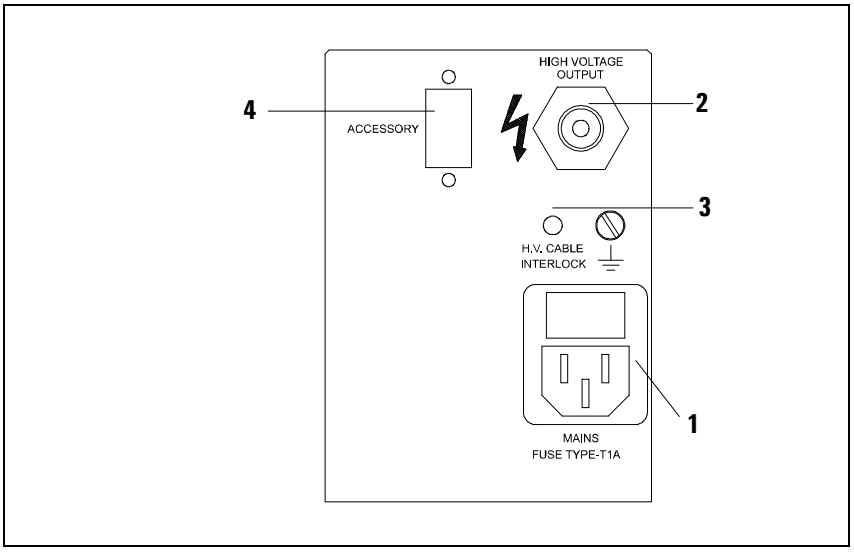


Abbildung 3 Rücktafel der Controller

1	Eingangsmodul der Controller-Stromversorgung mit Sicherung, Spannungswahlschalter, Leistungsstecker und EMC-Filter (nicht im Block Stecker/Spannungswahlschalter eingeschlossen).
2	Hochspannungs-Ausgangsstecker zur Pumpen versorgung (Typ KINGS).
3	Stecker zur Aktivierung der Ausgangshochspannung (H.V. Cable Interlock).
4	Eingangs-/Ausgangsstecker für Signale für Zubehör.

Installation der als Zubehör gelieferten Skala in Pascal oder Millibar

Die Controller der MicroVac Serie werden mit Druckskala in Torr (Torricelli) geliefert. Diese kann jedoch durch eine solche in Pa (Pascal) oder mBar (Millibar) ersetzt werden, die als Zubehör geliefert wird. Im folgenden ist dieser Austausch beschrieben.

Das betreffende Etikett aus der Zubehörverpackung ziehen. Dies Etikett **A** über den vorhandenen legen. Dabei darauf achten, daß die Löcher **C** übereinander liegen. Dann mit den Druckknöpfen **B** fest machen.

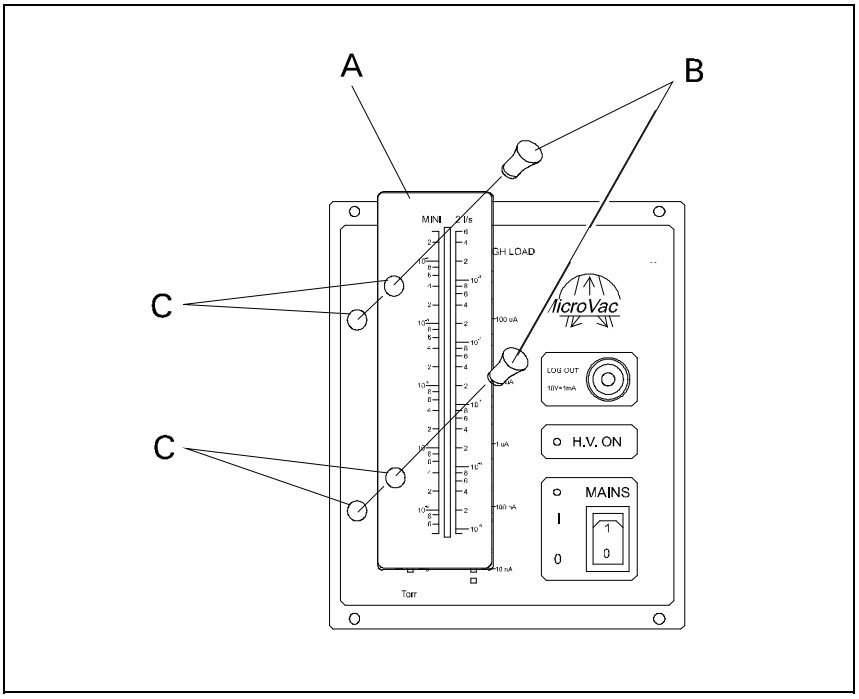


Abbildung 4 Installation der Skala in Pascal oder in Millibar

Bedienung

Einschalten des Controllers

Zum Einschalten des Controllers genügt es, das Netzkabel an die Steckdose anzuschließen.

Pumpenstart

D Die Pumpe startet nur, wenn der Controller eingeschaltet ist und die beiden Verriegelungen (Hochspannungskabel und Remote ON/OFF) kurzgeschlossen sind. Weiteres findet sich im Abschnitt “Technical Information”.

Pumpenstopp

Zum Stoppen der Pumpe muß der Hauptschalter auf dem Bedienfeld auf OFF gesetzt werden.

Wartung

Die Controller der MicroVac Serie brauchen keinerlei Wartung. Alle Eingriffe dürfen nur von autorisiertem Personal vorgenommen werden.

Bei Defekten kann der Reparatur Service von Agilent oder der "Agilent Advance Exchange Service" in Anspruch genommen werden, der den defekten Controller durch ein Austauschgerät ersetzt.

WARNUNG! **Vor jedem Eingriff am Controller muß der Netzstecker gezogen werden.**

Eine eventuelle Verschrottung muß unter Einhaltung der einschlägigen landesüblichen Vorschriften erfolgen.

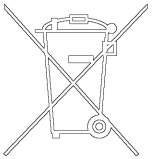
Entsorgung

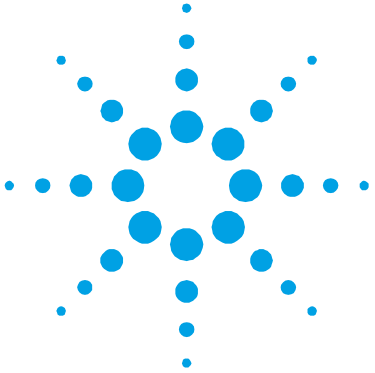
Bedeutung des "WEEE" Logos auf den Etiketten.

Das folgende Symbol ist in Übereinstimmung mit der EU-Richtlinie WEEE (Waste Electrical and Electronic Equipment) angebracht.

Dieses Symbol **(nur in den EU-Ländern gültig)** zeigt an, dass das betreffende Produkt nicht zusammen mit Haushaltsmüll entsorgt werden darf sondern einem speziellen Sammelsystem zugeführt werden muss.

Der Endabnehmer sollte daher den Lieferanten des Geräts - d.h. die Muttergesellschaft oder den Wiederverkäufer - kontaktieren, um den Entsorgungsprozess zu starten, nachdem er die Verkaufsbedingungen geprüft hat.





3 Mode d’emploi

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Traduction de la mode d’emploi originale

Indications Generales

Cet appareillage a été conçu en vue d'une utilisation professionnelle. L'utilisateur doit lire attentivement cette notice d'instructions ainsi que toute autre indication supplémentaire fournie par Agilent, avant l'utilisation de l'appareil. Agilent décline toute responsabilité quant à: non-respect total ou partiel des instructions pour l'utilisation, mauvais usage par du personnel non formé, opérations non autorisées usage contraire aux réglementations nationales spécifiques.

Micro Vac est un alimentateur à haute tension, faible puissance, conçu pour alimenter les pompes ioniques; il est équipé d'un microprocesseur pour le pilotage du panneau avant.

Il est doté d'un connecteur pour l'alimentation de la pompe et d'une broche d'interverrouillage. Si cette dernière n'est pas branchée sur le connecteur de sortie le dispositif n'est pas alimenté en tension.

Les paragraphes suivants donnent toutes les indications nécessaires pour garantir la sécurité de l'opérateur pendant l'utilisation de l'appareillage. Des renseignements plus détaillés se trouvent dans la section "Technical Information".

Cette notice utilise les signes conventionnels suivants:

AVERTISSEMENT!

Les messages d'avertissement attirent attirent l'attention de l'opérateur sur une procédure ou une manoeuvre spéciale qui, si elle n'est pas effectuée correctement, risque de provoquer de graves lésions.

ATTENTION! Les messages d'attention apparaissent avant certaines procédures qui, si elles ne sont pas observées, pourraient endommager sérieusement l'appareillage.

NOTE Les notes contiennent des renseignements importants, isolés du texte.

Emmagasinage

Pendant le transport et l'emmagasinage des Micro Vaccontrôleurs, il faudra veiller à respecter les conditions environnementales suivantes:

- Température: de - 20 °C à + 70 °C
- Humidité relative: 0 – 95 % (non condensante).

Preparation pour l'installation

Le contrôleur est fourni dans un emballage de protection spécial; si vous constatez des marques de dommages pouvant s'être produits pendant le transport, adressez-vous aussitôt au bureau de vente local. Pendant l'opération d'ouverture de l'emballage, veiller tout particulièrement à ne pas laisser tomber le contrôleur et à ne lui faire subir aucun choc. Ne pas jeter l'emballage dans la nature. Le matériel est entièrement recyclable et il est conforme à la directive CEE 83/399 en matière de protection de l'environnement.

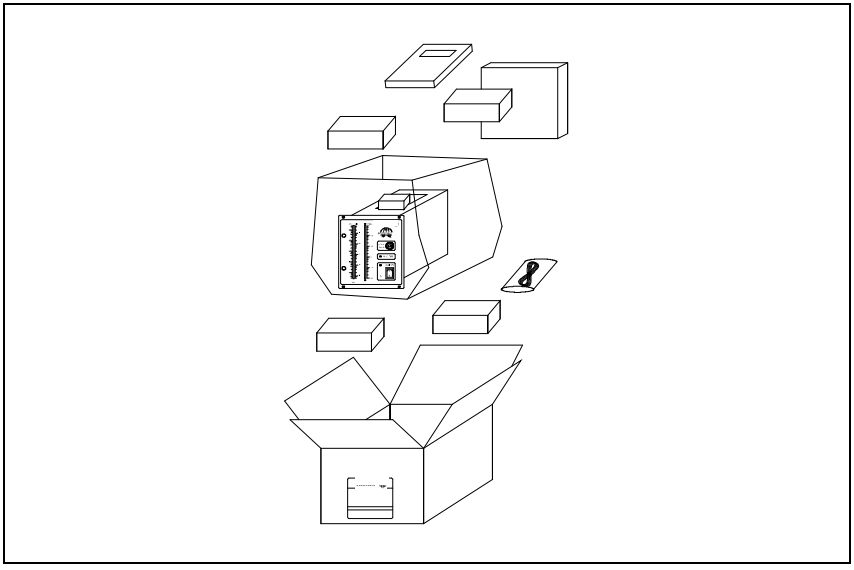


Figure 1 Emballage des Contrôleurs

Chaque contrôleur est fourni par Agilent prééquipé pour une certaine tension d'alimentation:

- modèle 929-0201 KINGS type High voltage connector (220 Vca, 50/60 Hz)
- modèle 929-0200 KINGS type High voltage connector (120 Vca, 50/60 Hz)

Installation

AVERTISSEMENT!

Le contrôleur est doté d'un câble d'alimentation à trois fils avec une fiche du type approuvé au niveau international. Utiliser toujours ce câble d'alimentation et introduire la fiche dans une prise pourvue d'un branchement approprié à la masse, afin d'éviter toute décharge électrique. A l'intérieur du contrôleur se développent de hautes tensions qui peuvent provoquer de graves dommages et même la mort. Avant d'effectuer toute opération d'installation ou d'entretien du contrôleur, le débrancher de la prise d'alimentation.

NOTE Le contrôleur doit être installé dans une baie prévue à cet effet. Il est en tout cas nécessaire que l'air de refroidissement puisse circuler librement à l'intérieur de l'appareil. Ne pas installer et/ou utiliser le contrôleur dans des milieux exposés aux agents atmosphériques (pluie, gel, neige), aux poussières, aux gaz de combat ni dans des milieux explosifs ou à risque élevé d'incendie.

Pendant le fonctionnement, il est nécessaire de respecter les conditions environnementales suivantes:

- Température: 0 °C à + 45 °C
- Humidité relative: 0 – 95 % (non condensante).

Pour la connexion du contrôleur à la pompe correspondante, utiliser le câble du contrôleur prévu à cet effet.

Pour les autres connexions et pour l'installation des accessoires en option, voir la section "Technical Information".

Utilisation

Ce paragraphe décrit les principales procédures de fonctionnement. Pour tout autre complément d'information et pour les procédures concernant des connexions ou des éléments en option, se reporter au paragraphe "Use" de la section "Technical Information".

Avant d'utiliser le contrôleur, effectuer toutes les connexions électriques et pneumatiques et se référer à la notice de la pompe connectée.

Commandes, Indicateurs et Connecteurs du Contrôleur

La figure ci-après représente le tableau de commande du Contrôleur et les tableaux d'interconnexion.

Pour de plus amples détails, se reporter à la section "Technical Information".

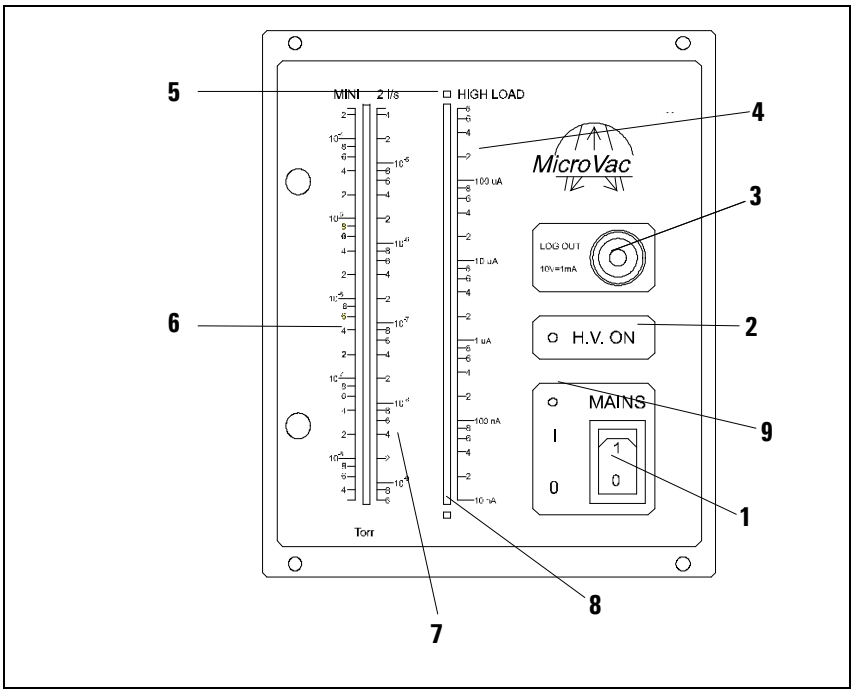


Figure 2 Tableau avant du Contrôleur

1	Interrupteur ON/OFF principal
2	LED H. T.
3	Connecteur de sorite signal proportionnel au courant 10 V= 1 mA log
4	Echelle de courant (mA)
5	Led High Load (Charge élevée), il clignote quand le courant consommé par la pompe atteint la valeur de 1 mA
6	Echelle de pression pour pompe Mini
7	Echelle de pression pour pompe de 2 l/s
8	LED H. T.
9	LED Ligne principale

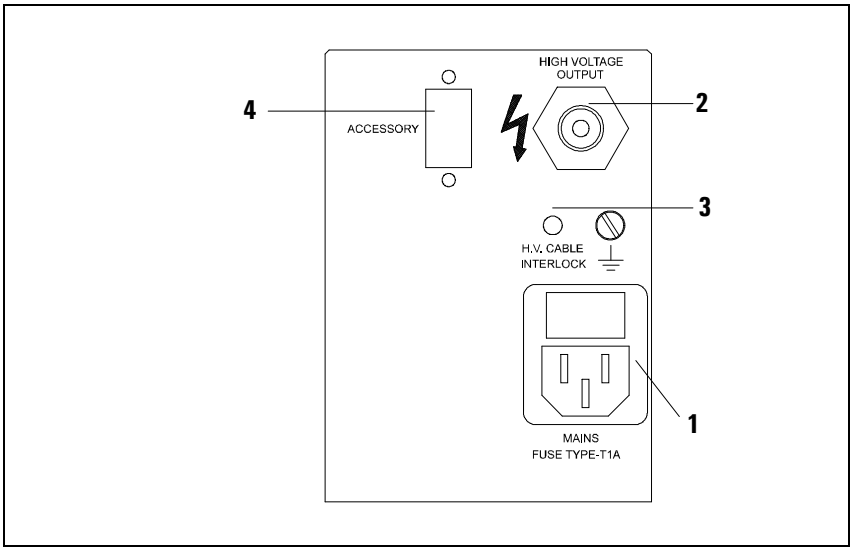


Figure 3 Tableau arrière des Contrôleurs

1	Module d'entrée de l'alimentation du Contrôleur. Il est doté du fusible de protection, du dispositif de changement de tension, de la prise d'alimentation en puissance et du filtre EMC (qui n'est pas compris dans le bloc prise/dispositif de changement de tension).
2	Connecteur de sortie haute tension pour l'alimentation de la pompe (type KINGS).
3	Connecteur pour la validation de la haute tension en sortie (H.V. Cable Interlock).
4	Connecteur d'entrée/sortie des signaux pour les accessoires.

Installation échelle graduée en Pascal ou en Millibar livrée comme accessoire

Les contrôleurs de la gamme MicroVac sont livrés avec l'échelle de la pression exprimée en Torr (Torricelli); toutefois, il est possible de la remplacer avec une autre graduée en Pa (Pascal) ou mBar (Millibar) (livrée comme accessoire). La procédure de remplacement est décrite ci-après.

Après avoir enlevé de l'emballage des accessoires l'étiquette requise, superposer l'étiquette **A** à celle existante, en prenant soin de faire coïncider les trous **C**; la fixer par des dispositifs de fixation par pression **B**.

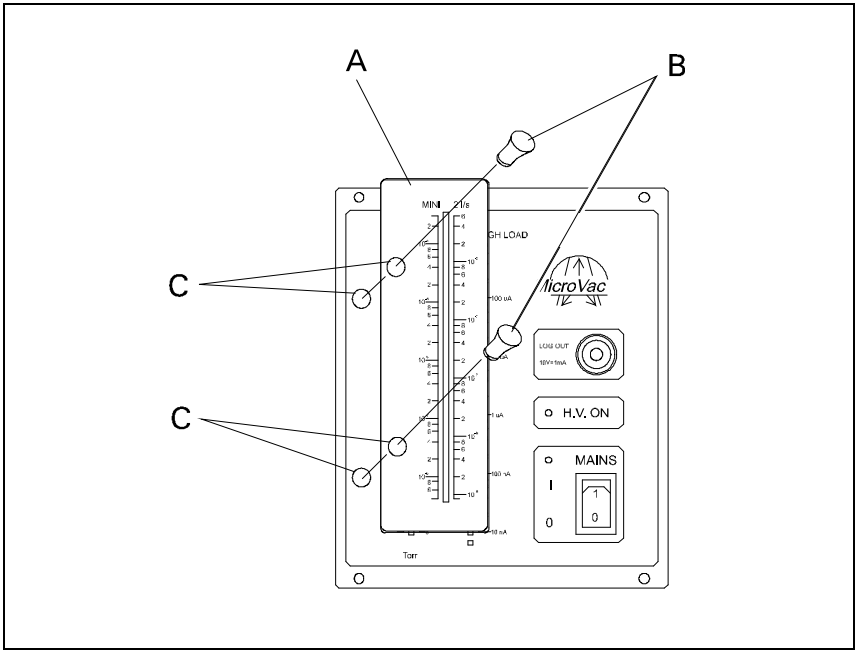


Figure 4 Installation étiquette graduée en Pascal ou en Millibar

Procedures d'utilisation

Mise sous tension du Contrôleur

Pour mettre le contrôleur sous tension, il suffit de mettre l'interrupteur principal sur ON après avoir branché le câble d'alimentation sur la prise du réseau.

Mise en marche de la Pompe

La pompe se met en marche uniquement si le contrôleur est sous tension et si les deux dispositifs d'interverrouillage (H.V. Cable et Remote ON/OFF) sont court-circuités. Pour tout autre complément d'information se reporter à la section "Technical Information".

Arrêt de la Pompe

Pour arrêter la pompe, mettre l'interrupteur principal situé sur le tableau avant sur OFF.

Entretien

Les contrôleurs de la série MicroVac ne requièrent aucun entretien. Toute intervention doit être effectuée par du personnel autorisé.

En cas de panne, il est possible de faire appel au service de réparation Agilent ou au "Agilent advance exchange service", qui permet d'obtenir un contrôler régénéré à la place de celui en panne.

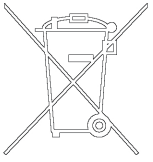
AVERTISSEMENT! **Avant d'effectuer toute intervention sur le contrôleur, débrancher le câble d'alimentation.**

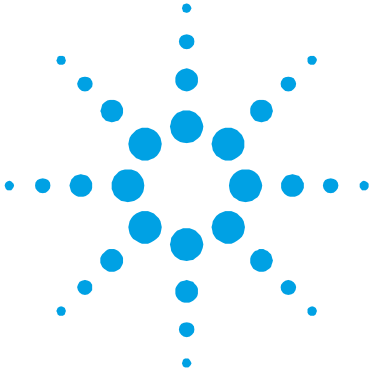
Si un contrôleur doit être mis au rebut l'éliminer conformément aux réglementations nationales en la matière.

Mise au rebut

Signification du logo "WEEE" figurant sur les étiquettes.
Le symbole ci-dessous est appliqué conformément à la directive CE nommée "WEEE".

Ce symbole **(uniquement valide pour les pays de la Communauté européenne)** indique que le produit sur lequel il est appliqué NE doit PAS être mis au rebut avec les ordures ménagères ou les déchets industriels ordinaires, mais passer par un système de collecte sélective.
Après avoir vérifié les termes et conditions du contrat de vente, l'utilisateur final est donc prié de contacter le fournisseur du dispositif, maison mère ou revendeur, pour mettre en œuvre le processus de collecte et mise au rebut.





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Original Instructions

General Information

This equipment is destined for use by professionals. The user should read this instruction manual and any other additional information supplied by Agilent before operating the equipment. Agilent will not be held responsible for any events occurring due to non-compliance, even partial, with these instructions, improper use by untrained persons, non-authorised interference with the equipment or any action contrary to that provided for by specific national standards. The MicroVac is a high voltage and low power feeder used to feed the ionic pumps; it is equipped with a microprocessor used to control the front panel.

In addition to the connector to feed the pump, there is also a jack acting as an interlock; if it is not inserted into the output connector, no voltage is present.

The following paragraphs contain all the information necessary to guarantee the safety of the operator when using the equipment. Detailed information is supplied in the section "Technical Information".

This manual uses the following standard protocol:

WARNING! **The warning messages are for attracting the attention of the operator to a particular procedure or practice which, if not followed correctly, could lead to serious injury.**

CAUTION! The caution messages are displayed before procedures which, if not followed, could cause damage to the equipment.

NOTE The notes contain important information taken from the text.

Storage

When transporting and storing the MicroVacs, the following environmental requirements should be satisfied:

- temperature: from -20 °C to + 70 °C
- relative humidity: 0 – 95 % (without condensation)

Preparation for Installation

The controller is supplied in a special protective packing. If this shows signs of damage which may have occurred during transport, contact your local sales office. When unpacking, ensure that the module is not dropped or subjected to any form of impact. Do not dispose of the packing materials in an unauthorised manner. The material is 100 % recyclable and complies with EEC Directive 85/399.

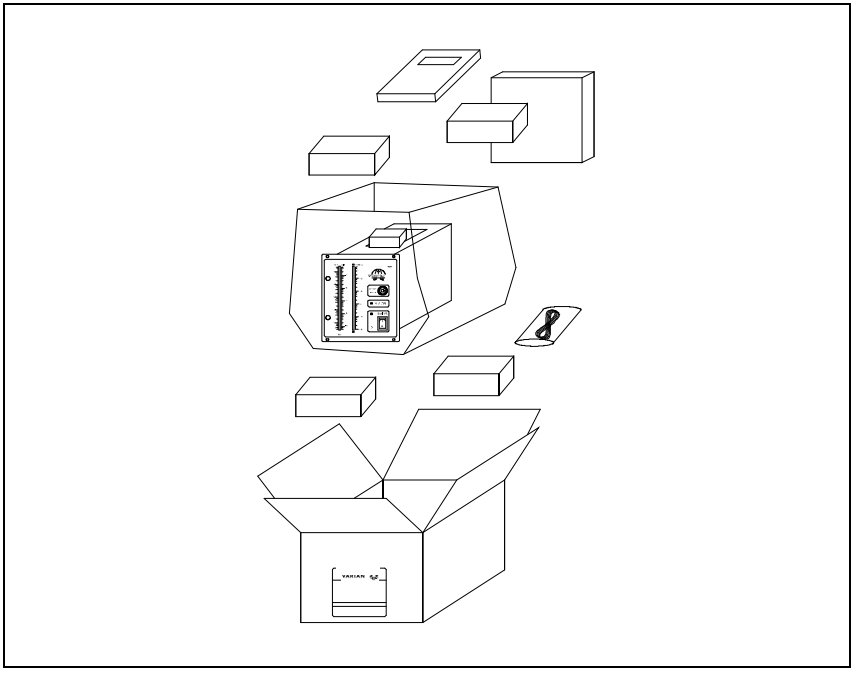


Figure 1 Controller Packing

Each controller is factory set for a specific power supply:

- model 929-0201 KINGS type High voltage connector (220 Vac, 50/60 Hz)
- model 929-0200 KINGS type High voltage connector (120 Vac, 50/60 Hz)

Installation

WARNING!

The controller is equipped with a 3-wire power cord and plug (internationally approved) for user's safety. Use this power cord and plug in conjunction with a properly grounded power socket to avoid electrical shock. High voltage developed in the controller can cause severe injury or death. Before servicing the unit, disconnect the input power cable.

NOTE The controller must be installed inside a rack module, but it must be positioned so that free air can flow through the holes. Do not install or use the controller in an environment exposed to atmospheric agents (rain, snow, ice), dust, aggressive gases, or in explosive environments or those with a high fire risk.

During operation, the following environmental conditions must be respected:

- temperature: from 0 °C to +45 °C
- relative humidity: 0 – 95 % (without condensation)

To connect the controller to the pump use the specific cable supplied with the controller.

See the section "Technical Information" for detailed information about the above mentioned and the other connections, and about the options installation.

Use

This paragraph describes the fundamental operating procedures. Detailed information and operating procedures that involve optional connections or options are supplied in the paragraph "USE" of the section "Technical Information".

Make all vacuum manifold and electrical connections and refer to the pump instruction manual prior to operating the controller.

Controller Controls, Indicators and Connectors

The following paragraph illustrates either the front and rear panel with its interconnections.

More details are contained in the appendix "Technical Information".

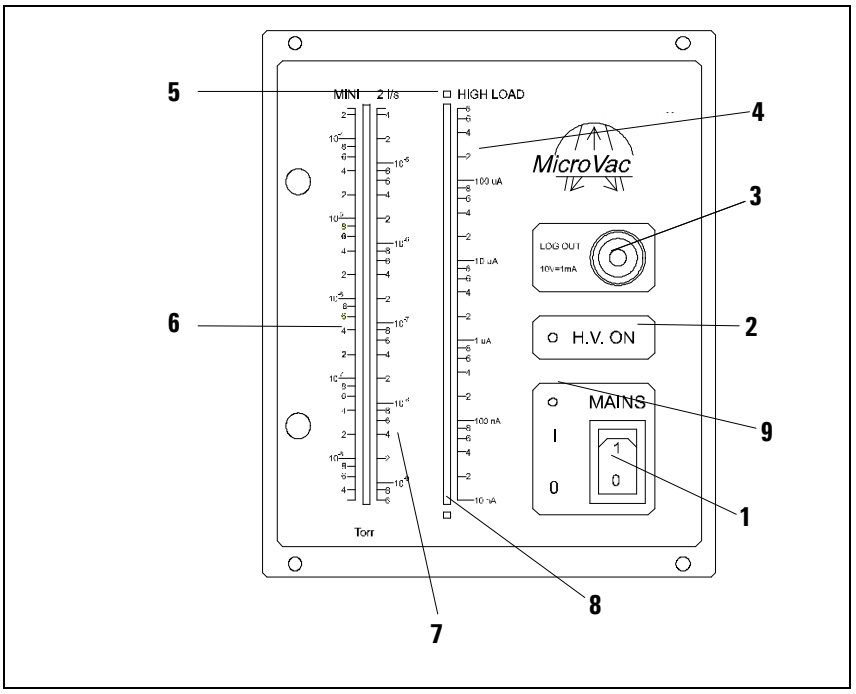


Figure 2 Controller Front Panel

1	ON/OFF main switch
2	H. V. LED
3	Output signal proportional to 10 V = 1 mA log current connector
4	Scale expressed in current (mA)
5	High Load Led; it blinks on when the current absorbed by the pump reaches a value equal to 1 mA
6	Pressure scale for Mini pump
7	Pressure scale for 2 l/s pump
8	H. V. LED
9	Mains LED

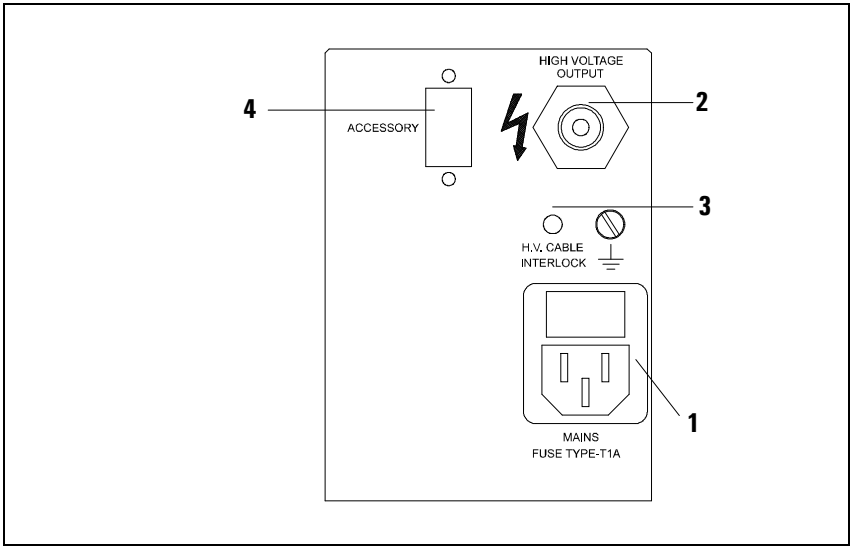


Figure 3 Controller Rear Panel

1	Input module for the controller power supply. It includes the protection fuse, the voltage changer, the power supply plug, and the EMC filter (not included into the plug/voltage switch assembly).
2	High voltage output connector for the pump (KINGS type) power supply.
3	Connector for the output high voltage activation (H.V. Cable Interlock).
4	Input/output signal connector for fittings

Pascal or Millibar Graduated Scale Installation (Supplied as a Fitting)

The MicroVac series controllers are supplied with the pressure scale expressed in Torr (Torricelli); however, it is possible to replace it with another one, a Pa (Pascal) or mBar (Milibar) graduated scale (supplied as a fitting). To replace, proceed as follows.

After removing the desired label from the fitting package, put label **A** on the existing one, matching the holes **C**; then fix it using the push locks **B**.

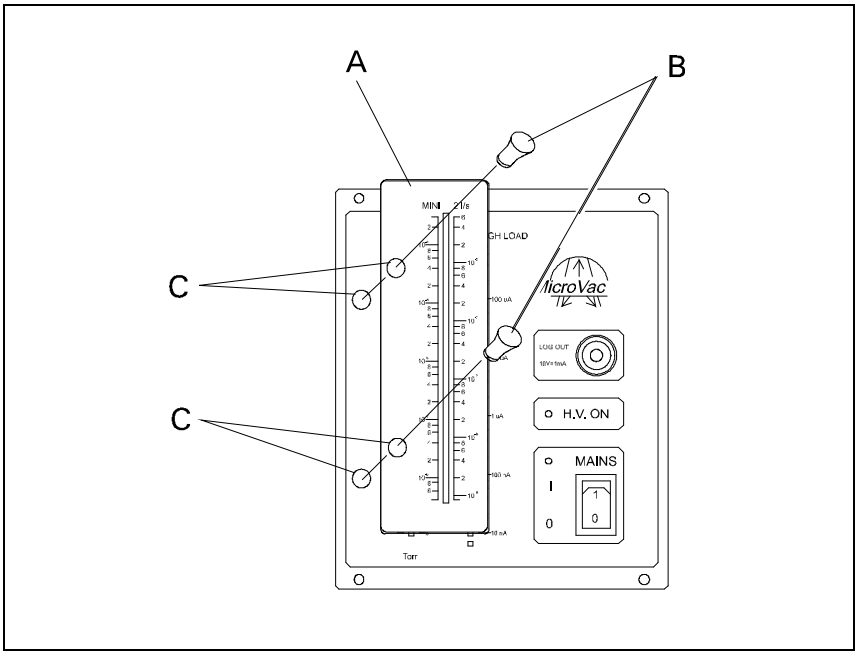


Figure 4 Pascal or Millibar Graduated Label Installation

Use Procedure

Controller Start-up

To start-up the controller, turn the main switch to ON, after plugging the power cable into a suitable power source.

Starting the Pump

The pump starts only when the controller is turned on and the two interlocks (H.V. Cable and Remote ON/OFF) are short-circuited. Please refer to section “Technical Information” for further information.

Pump Shutdown

To shutdown the pump, turn the main switch placed on the front panel to OFF.

Maintenance

The MicroVac series controllers do not require any maintenance interventions. Any intervention must be performed by authorised personnel only. When a fault has occurred it is possible to use the Agilent repair service or the “Agilent advance exchange service”, that allows to obtain a regenerated controller replacing the faulty one.

WARNING! **Before carrying out any work on the controller, disconnect it from the supply.**

If a pump is to be scrapped, it must be disposed of in accordance with the specific national standards.

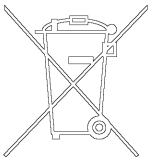
Disposal

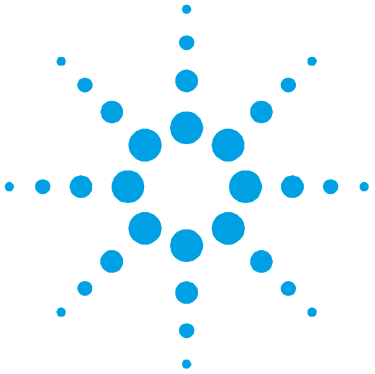
Meaning of the "WEEE" logo found in labels.

The following symbol is applied in accordance with the EC WEEE (Waste Electrical and Electronic Equipment) Directive.

This symbol (**valid only in countries of the European Community**) indicates that the product it applies to must NOT be disposed of together with ordinary domestic or industrial waste but must be sent to a differentiated waste collection system.

The end user is therefore invited to contact the supplier of the device, whether the Parent Company or a retailer, to initiate the collection and disposal process after checking the contractual terms and conditions of sale.





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Original Instructions

MicroVac Controller Description

The MicroVac controller is a quarter rack solid state power supply with self protection features, which generates the high voltage for the pump.

The MicroVac ion pump controller is designed to operate the Mini and the 2 l/s ion pumps, but can also operate the 8 l/s ion pump.

The controller is designed to withstand continuous operation at short circuit condition, without any damage to the ion pump or to the controller itself.

The MicroVac controller is available in two versions, which differ in the factory-set input voltage and in the high voltage output connector type.

- Model 929-0200 KINGS type High voltage connector (120 Vac, 50/60 Hz)
- Model 929-0201 KINGS type High voltage connector (220 Vac, 50/60 Hz)

A voltage change over allows to select different operating voltages.

Inspect the controller for any shipping damage.

- Model 929-0200 is factory set for 120 Vac operation.
- Model 929-0201 is factory set for 220 Vac operation.

WARNING!

The MicroVac controller is equipped with a 3-wire power cord and plug (internationally approved) for user's safety. Use this power cord and plug in conjunction with a properly grounded power socket to avoid electrical shock. High voltage developed in the controller can cause severe injury or death. Before servicing the unit, disconnect the input power cable.

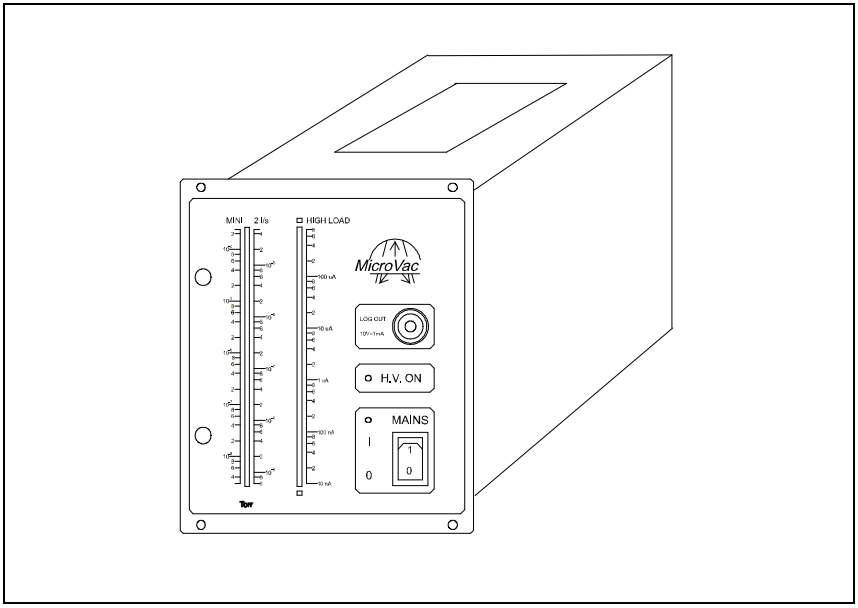

Figure 5 MicroVac Controller

Controller Specifications

Tab. 1

Operation	Mini, 2 l/s pumps
Input: Voltage Frequency Power	 100, 120, 220, 240 Vac ±10 %, 1-phase 47 to 63 Hz 40 VA maximum
Output: Voltage Current Power	 3.300 Vdc nominal ±10 %, 1 mA (short circuit) 1.2 W maximum
Current Recorder Output: - Log Rec Out (see attached graphs)	 0 to 10 Vdc (10 V correspond to 1 mA; 10 nA resolution
Voltage Recorder Output: - Rec Out	 0 to 3.3 V corresponding to 0 to 3.3 KV with 1 V corresponding to 1 KV in linear mode) Available at pins 4 and 8 of rear panel Accessory connector.
Operating temperature	0 °C to +45 °C
Storage temperature	-20 °C to +70 °C
Fuse (mains)	2 x T 1A (slow blow) disregarding the mains
Radio interference suppression	EN 55011 class A group 1 EN 61000-4 -2/3/4
Safety	EN 61010 - 1
Installation category	II
Pollution degree	2
Output Connector: - High voltage - Accessory	 KINGS type: P/N 10664-I for Model 929-0200 and 929-0201 J 101 input/output signal (9-pin “D” type socket)
Cable	Mains, 3 meters long
Weight:	1.7 Kg (4 lbs)

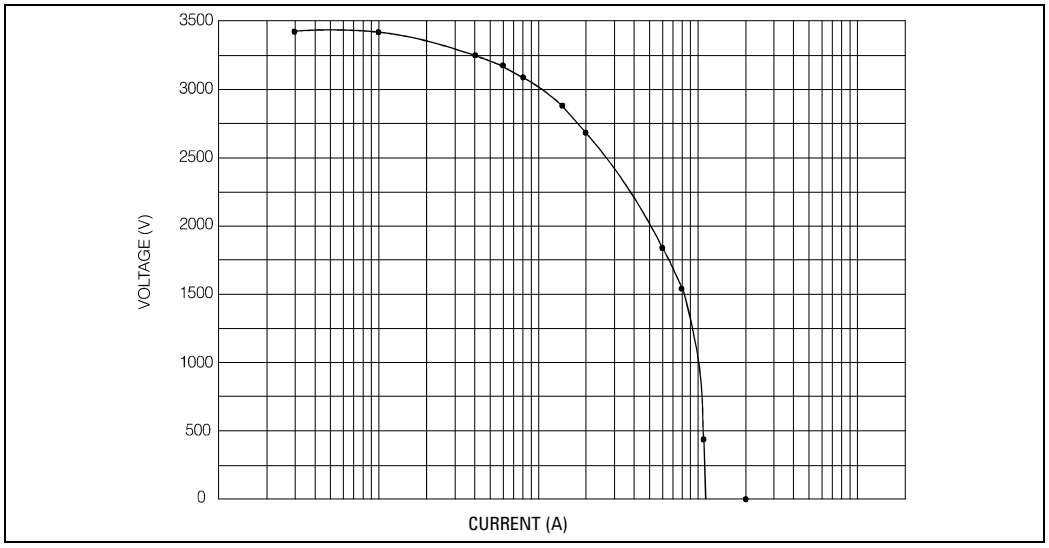

Figure 6 Pump current/voltage diagram

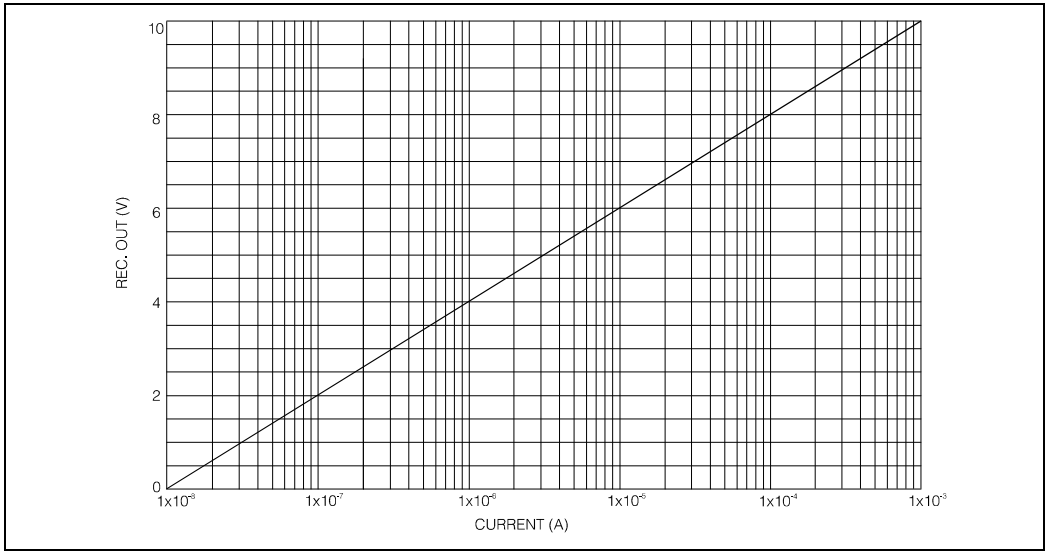

Figure 7 Voltage/current diagram on front connector

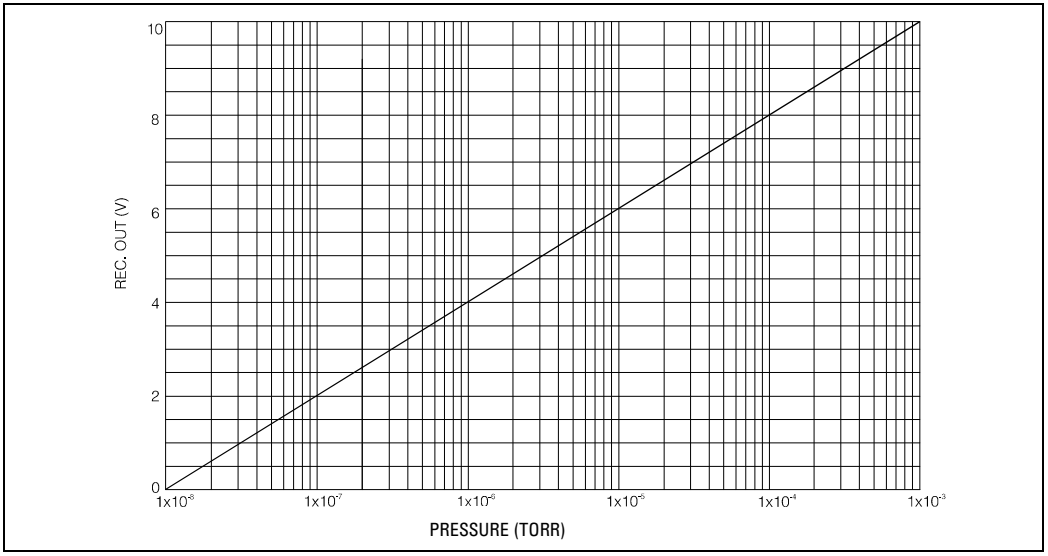

Figure 8 Pressure/voltage diagram on front connector for 2 l/s pump and Minipump

Controller Outline

The outline dimensions of the MicroVac controllers are shown in the following figures.

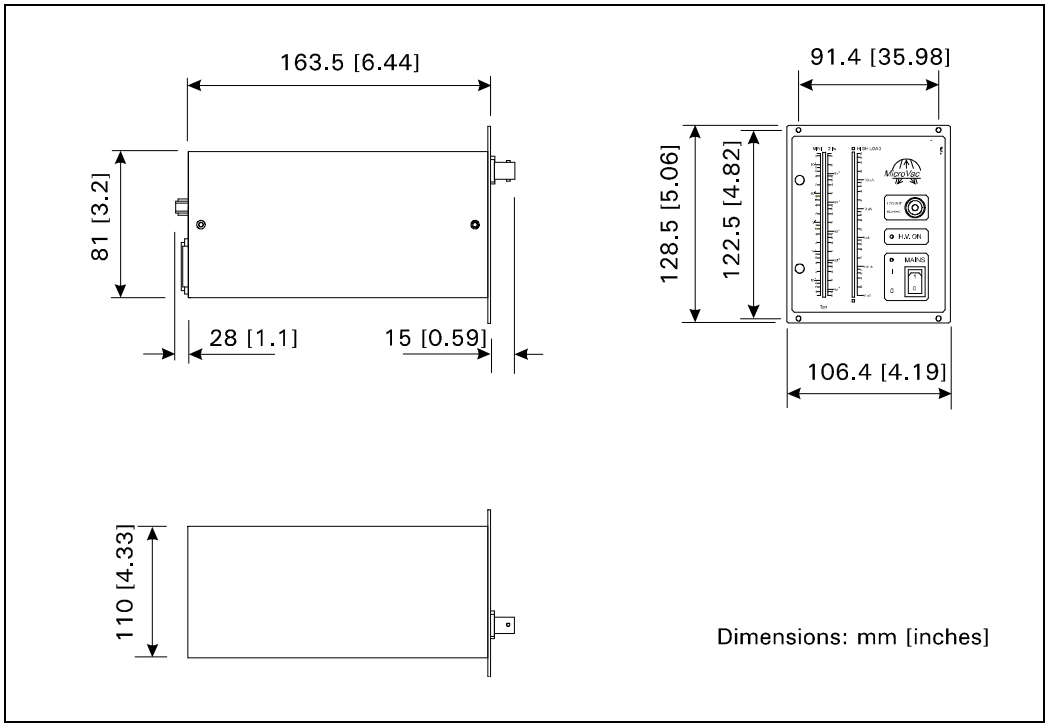

Figure 9 Controller outline

Interconnections

The following figure shows the Controller interconnections.

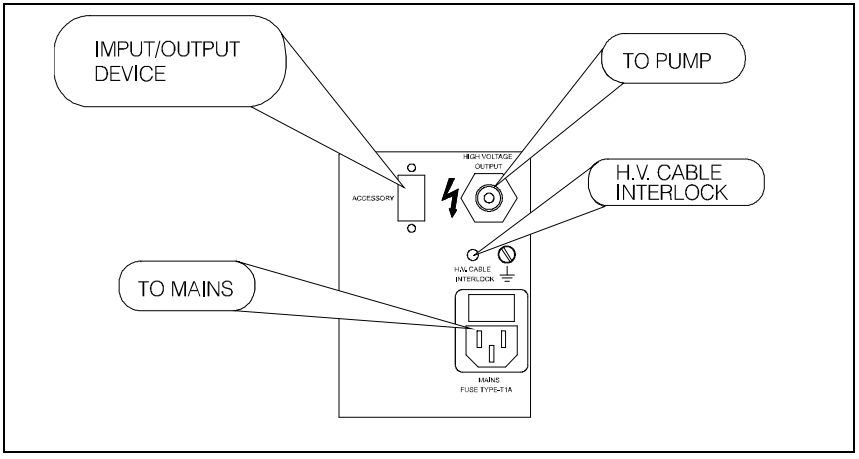

Figure 10 Controller interconnections

Fuse Holder and Voltage Changer Assembly

If a change in line voltage operation is desired, proceed as follows:

1. Unplug the power cord from the controller rear panel socket.
2. On the power entry module (rear panel), check back door for voltage selector set.
3. Using a small screwdriver, pull out the voltage selector and fuses by levering in position A.
4. Replace the fuse.
   Use only T-type fuses of the following characteristics:
   - 100/120 Vac 1 A
   - 220/240 Vac 1 A

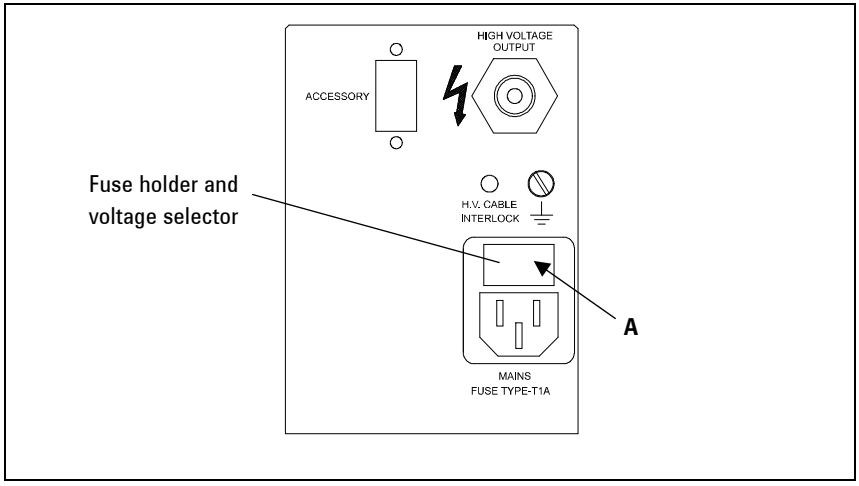

Figure 11 Rear panel

5. Select the operating voltage, then firmly insert the voltage selector and fuses in place.

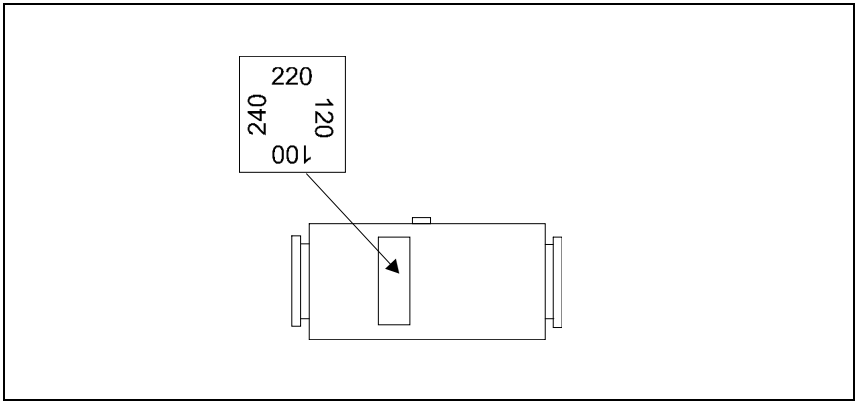

Figure 12 Voltage Changer

6. Check voltage selector window for correct set and connect the power cord.

Input/Output Interconnections

All input/output signals are accessible at J001 accessory connector.

With the provided P001 mating connector make the connections with AWG 24 (0.24 mm^2) - or smaller wire - to the pins indicated in following figure, to obtain the desired capability.

Input Signals

Pin 3-7 Remote high voltage ON/OFF or high voltage interlock; requires a permanent closed pin contact.

NOTE Pin 3-7 must be shorted to allow the high voltage output if no remote interlock contact is connected.

Output Signals

The front panel REC.OUT connector is a duplicate of this signal on a BNC connector.

Tab. 2

PIN	DESCRIPTION
2-6	Current recorder output (pin 2 signal out, pin 6 ground). The output voltage 0 to +10 Vdc is proportional to the pump current 0 to 1 mA (e.g. 10 Vdc correspond to 1 mA). The resolution is 10 mV minimum.
4-8	Voltage recorder output (pin 4 signal out, pin 8 ground). The output voltage 0 to 3 V is proportional to the controller high voltage output 0 to 3 kV (e.g. 1 V corresponds to 1 kV in linear mode).
5-9	High voltage indication contact. This pure contact (which carries 1 A at 250 Vac and 0.2 A at 30 Vdc) is open when the high voltage is off and closes when the high voltage in on.

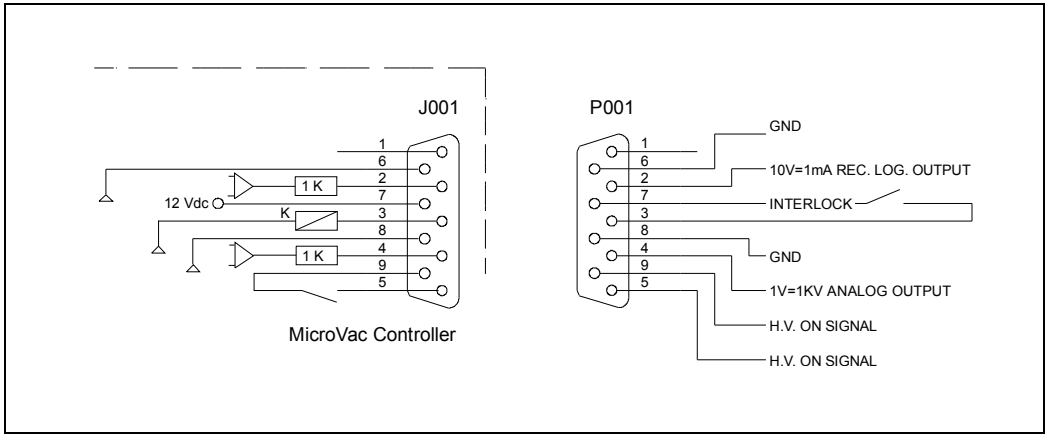

Figure 13 P001 mating connector and J001 accessory connector

Pump Connection

The pump is connected to the controller rear panel via the high voltage connector by a coaxial high voltage cable assembly.

WARNING!

High voltage can cause severe injury or death. Before installing or removing the connector:

1. Turn the power off.
2. When connecting the cable to 2 l/s pumps, or larger, be sure that the ground spring is in place on the high voltage connectionof the pump.
3. Install the pump connector and secure it with screws.
4. Plug the controller connector.

Interlock

The interlock is a safety device designed by Agilent to prevent serious damages to the operator due to high voltage on the pump power connector.

Therefore, two serial electrically connected interlocks are planned; both of them should be closed, so that the pump can activate.

- H.V. Cable Interlock consists of a Jack (**A**) grounded through a cable connected to the metal frame.
- Remote ON/OFF Interlock consists of a P001 connector (included) whose 3 and 7 pins are short-circuited (please refer to the previous figure).

In order to activate the pump, you should:

5. Plug Jack (**A**) into plug (**B**).
6. Plug P001 connector into J001 connector.
7. Place the main switch to ON.

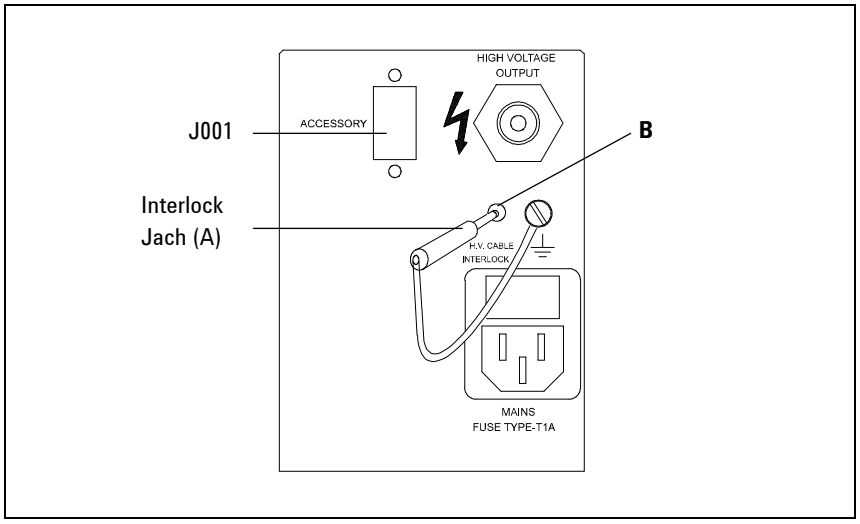

Figure 14 Interlock Jack position

Use

General

Make all vacuum manifold and electrical connections and refer to the ion pump instruction manual prior to operating the MicroVac controller.

NOTE The accessory P001 connector should be left in position including the jumper between pin 3 and 7 if no external connection has been made.

CAUTION! Before plugging in the controller power cable, be sure that the selected operating voltage matches the power source to avoid equipment damage.

1. Plug the controller power cable into a suitable power source.
2. Place the ON/OFF switch in the ON position.
3. Monitor the VacIon pump current and the controller high voltage output by watching the LED lit, then read the corresponding current and pressure values
4. If only the first LED of the bar graph is lit, the current drawn by the pump is less than 10 nA and the voltage output is 3 kV.
5. If the entire bar is lit and the High Load LED is blinking, this means that the current is higher than ≥1 mA.

Pressure Determination

The bar graph at the left gives the indication of the pressure into the pump. The left scale is for Mini Pump, the right one for the 2 l/s pump.

Power Failure

In the event of a power failure (momentary or long period) the controller is switched off. When power is restored, the controller will automatically restart.

Remote Control Mode Operation

It is possible to remotely switch onb and off the high voltage using a permanent contact connected to pins 3 and 7 of J001 accessory connector with the mains power ON/OFF switch to ON.

Replacement

General

Replacement controllers are available on advance exchange basis through Agilent service/sales organization.

WARNING! **High voltage in the controller can cause severe injury or death. Before servicing, turn power off and remove the power cable.**

Troubleshooting

a No current/voltage LED bar graph lit with mains power ON but H.V. ON LED off (Mains LED on).

- Verify mains connections and power fuses
- Verify on P001 that pins 3-7 are shorted.
- Verify the H.V. cable interlock

b Vac Ion pump is operating at High pressure and only the first LED is lit.

- No high voltage output. Replace the unit.

c Vac Ion pump operating at Low pressure and all LED are lit.

- Switch power off and disconnect the high voltage cable.
- Switch power on and verify that only one LED is lit. If this happens the high voltage cable or the pump are shorted.
- If not, replace the unit.

Accessories and Spares Parts

Tab. 3

Description	Part number
Mating accessory connector P001	03-648487
Fuse T1A (5 x 20 mm)	67.150410-01
Rack adapter	969-9191
Mains cable 120 Vac USA plug	03-660441-02
Mains cable 220 Vac European plug	03-660441-01

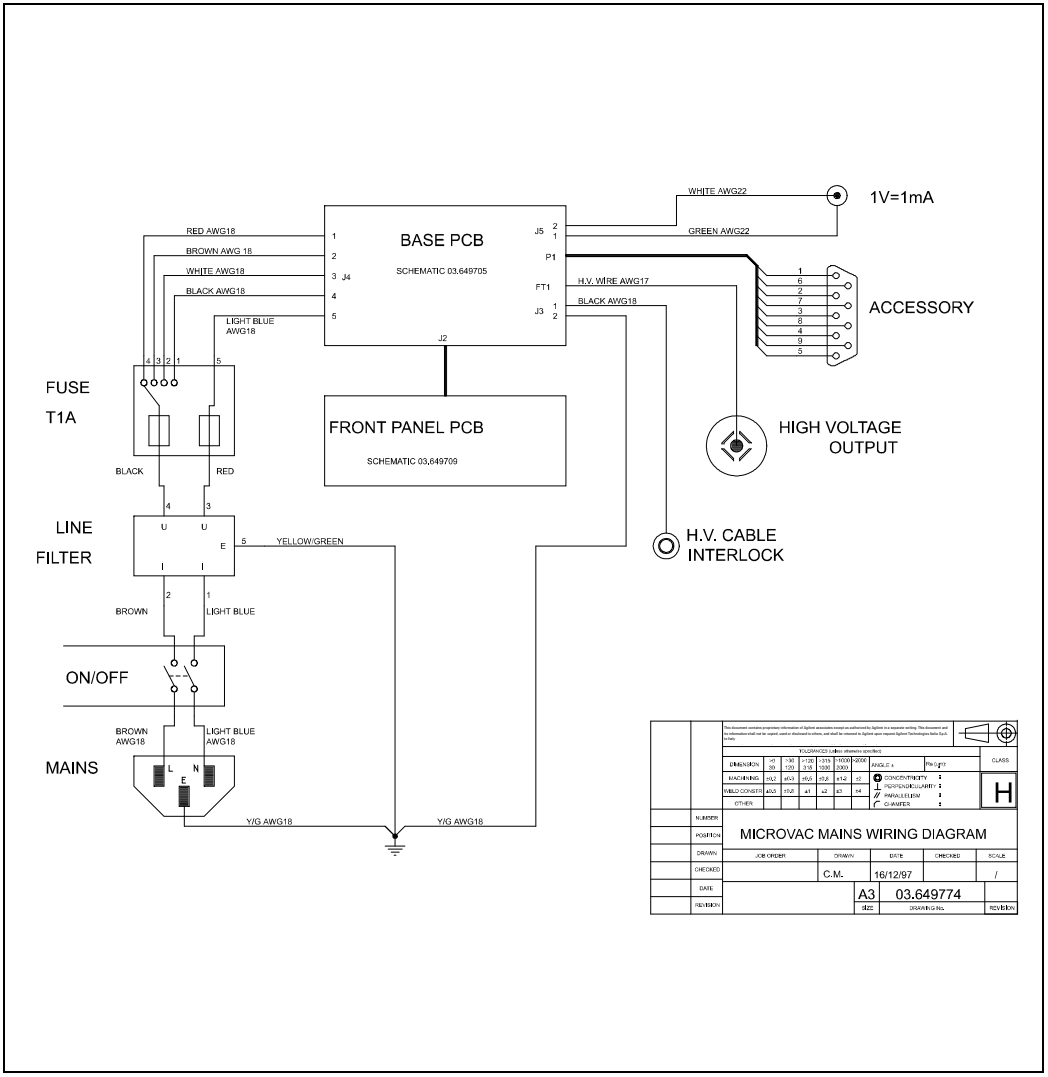
WHITE AWG22
1V=1mA
GREEN AWG22
RED AWG18
BROWN AWG 18
WHITE AWG18
BLACK AWG18
LIGHT BLUE AWG18
BASE PCB
SCHEMATIC 03.649705
J5
P1
FT1
J3
J4
J2
H.V. WIRE AWG17
BLACK AWG18
ACCESSORY
FUSE
T1A
FRONT PANEL PCB
SCHEMATIC 03,649709
HIGH VOLTAGE OUTPUT
BLACK
RED
LINE
FILTER
YELLOW/GREEN
H.V. CABLE INTERLOCK
BROWN
LIGHT BLUE
ON/OFF
BROWN AWG18
LIGHT BLUE AWG18
MAINS
Y/G AWG18
Y/G AWG18
MICROVAC MAINS WIRING DIAGRAM
C.M.
16/12/97
A3
03.649774

Figure 15

Agilent Technologies

Vacuum Products Division

Dear Customer,

Thank you for purchasing an Agilent vacuum product. At Agilent Vacuum Products Division we make every effort to ensure that you will be satisfied with the product and/or service you have purchased.

As part of our Continuous Improvement effort, we ask that you report to us any problem you may have had with the purchase or operation of our products. On the back side you find a Corrective Action request form that you may fill out in the first part and return to us.

This form is intended to supplement normal lines of communications and to resolve problems that existing systems are not addressing in an adequate or timely manner.

Upon receipt of your Corrective Action Request we will determine the Root Cause of the problem and take the necessary actions to eliminate it. You will be contacted by one of our employees who will review the problem with you and update you, with the second part of the same form, on our actions.

Your business is very important to us. Please, take the time and let us know how we can improve.

Sincerely.

Giampaolo LEVI

Vice President and General Manager
Agilent Vacuum Products Division

Note: Fax or mail the Customer Request for Action (see backside page) to Agilent Vacuum Products Division (Torino) – Quality Assurance or to your nearest Agilent representative for onward transmission to the same address.

CUSTOMER REQUEST FOR CORRECTIVE / PREVENTIVE / IMPROVEMENT ACTION

TO: AGILENT VACUUM PRODUCTS DIVISION TORINO – QUALITY ASSURANCE

FAX N°: XXXX-011-9979350

ADDRESS: AGILENT TECHNOLOGIES ITALIA S.p.A. – Vacuum Products Division –

Via F.lli Varian, 54 – 10040 Leinì (TO) – Italy

E-MAIL: vpd-qualityassurance_pdl-ext@agilent.com

NAME	COMPANY	FUNCTION

ADDRESS:

TEL. N° : _____ FAX N° : _____

E-MAIL: _____

PROBLEM / SUGGESTION :

REFERENCE INFORMATION (model n°, serial n°, ordering information, time to failure after installation, etc.):

DATE _____

CORRECTIVE ACTION PLAN / ACTUATION (by AGILENT VPD) LOG N° _____

XXX = Code for dialing Italy from your country (es. 01139 from USA; 00139 from Japan, etc.)

Agilent Technologies

Agilent Technologies

Vacuum Products Division
Instructions for returning products

Dear Customer:

Please follow these instructions whenever one of our products needs to be returned.

1) Complete the attached Request for Return form and send it to Agilent Technologies (see below), taking particular care to identify all products that have pumped or been exposed to any toxic or hazardous materials.

2) After evaluating the information, Agilent Technologies will provide you with a Return Authorization (RA) number via email or fax, as requested.
Note: Depending on the type of return, a Purchase Order may be required at the time the Request for Return is submitted. We will quote any necessary services (evaluation, repair, special cleaning, eg).

3) **Important steps for the shipment of returning product:**
   - Remove all accessories from the core product (e.g. inlet screens, vent valves).
   - Prior to shipment, drain any oils or other liquids, purge or flush all gasses, and wipe off any excess residue.
   - If ordering an Advance Exchange product, **please use the packaging from the Advance Exchange to return the defective product.**
   - Seal the product in a plastic bag, and package product carefully to avoid damage in transit. You are responsible for loss or damage in transit.
   - Agilent Technologies is not responsible for returning customer provided packaging or containers.
   - **Clearly label package with RA number.** Using the shipping label provided will ensure the proper address and RA number are on the package. Packages shipped to Agilent without a RA clearly written on the outside cannot be accepted and will be returned.

4) Return only products for which the RA was issued.

5) **Product being returned under a RA must be received within 15 business days.**

6) **Ship to the location specified on the printable label, which will be sent, along with the RA number, as soon as we have received all of the required information.** Customer is responsible for freight charges on returning product.

7) Return shipments must comply with all applicable **Shipping Regulations** (IATA, DOT, etc.) and carrier requirements.

RETURN THE COMPLETED **REQUEST FOR RETURN** FORM TO YOUR NEAREST LOCATION:

EUROPE:	**NORTH AMERICA:**	**PACIFIC RIM:**
Fax: 00 39 011 9979 330		
Fax Free: 00 800 345 345 00	Fax: 1 781 860 9252	please visit our website for individual
Toll Free: 00 800 234 234 00	Toll Free: 800 882 7426, Option 3	office information
vpt-customercare@agilent.com	vpl-ra@agilent.com	http://www.agilent.com

Agilent Technologies

Vacuum Products Division
Request for Return Form
(Health and Safety Certification)

Please read important policy information on Page 3 that applies to all returns.

1) CUSTOMER INFORMATION

Company Name:	**Contact Name:**
Tel: **Email:**	**Fax:**
Customer Ship To:	**Customer Bill To:**
Europe only: **VAT reg. Number:**	USA/Canada only: ☐ **Taxable** ☐ **Non-taxable**

2) PRODUCT IDENTIFICATION

Product Description	Agilent P/N	Agilent S/N	Original Purchasing Reference

3) TYPE OF RETURN (**Choose one from each row** and supply Purchase Order if requesting a billable service)

3A. ☐ Non-Billable ☐ Billable ➡ New PO # (hard copy must be submitted with this form):

3B. ☐ Exchange ☐ Repair ☐ Upgrade ☐ Consignment/Demo ☐ Calibration ☐ Evaluation ☐ Return for Credit

4) HEALTH and SAFETY CERTIFICATION

AGILENT TECHNOLOGIES CANNOT ACCEPT ANY PRODUCTS CONTAMINATED WITH BIOLOGICAL OR EXPLOSIVE HAZARDS, RADIOACTIVE MATERIAL, OR MERCURY AT ITS FACILITY.
Call Agilent Technologies to discuss alternatives if this requirement presents a problem.

The equipment listed above (check one):

☐ **HAS NOT** pumped or been exposed to any toxic or hazardous materials. OR

☐ **HAS** pumped or been exposed to the following toxic or hazardous materials. If this box is checked, the following information must also be filled out. Check boxes for all materials to which product(s) pumped or was exposed:

☐ Toxic ☐ Corrosive ☐ Reactive ☐ Flammable ☐ Explosive ☐ Biological ☐ Radioactive

List all toxic/hazardous materials. Include product name, chemical name, and chemical symbol or formula:

_____

NOTE: If a product is received at Agilent which is contaminated with a toxic or hazardous material that was not disclosed, **the customer will be held responsible** for all costs incurred to ensure the safe handling of the product, and **is liable** for any harm or injury to Agilent employees as well as to any third party occurring as a result of exposure to toxic or hazardous materials present in the product.

Print Name: **Authorized Signature:** ..... **Date:**

5) FAILURE INFORMATION:

Failure Mode (REQUIRED FIELD. See next page for suggestions of failure terms):
Detailed Description of Malfunction: (Please provide the error message)
Application (system and model):

I understand and agree to the terms of Section 6, Page 3/3.
Print Name: **Authorized Signature:** ..... **Date:**

Agilent Technologies

Vacuum Products Division
Request for Return Form
(Health and Safety Certification)

Please use these Failure Mode to describe the concern about the product on Page 2.

TURBO PUMPS and TURBO CONTROLLERS

APPARENT DEFECT/MALFUNCTION		POSITION	PARAMETERS	
- Does not start	- Noise	- Vertical	Power:	Rotational Speed:
- Does not spin freely	- Vibrations	-Horizontal	Current:	Inlet Pressure:
- Does not reach full speed	-Leak	-Upside-down	Temp 1:	Foreline Pressure:
- Mechanical Contact	-Overtemperature	-Other:	Temp 2:	Purge flow:
- Cooling defective	-Clogging	.....	OPERATING TIME:	

ION PUMPS/CONTROLLERS

- Bad feedthrough	- Poor vacuum
- Vacuum leak	- High voltage problem
- Error code on display	- Other

VALVES/COMPONENTS

- Main seal leak	- Bellows leak
- Solenoid failure	- Damaged flange
- Damaged sealing area	-Other

LEAK DETECTORS

- Cannot calibrate	-No zero/high backround
- Vacuum system unstable	- Cannot reach test mode
- Failed to start	- Other

INSTRUMENTS

- Gauge tube not working	- Display problem
- Communication failure	- Degas not working
- Error code on display	- Other

SCROLL AND ROTARY VANE PUMPS

- Pump doesn't start	- Noisy pump (describe)
- Doesn't reach vacuum	- Over temperature
- Pump seized	- Other

DIFFUSION PUMPS

- Heater failure	- Electrical problem
- Doesn't reach vacuum	- Cooling coil damage
- Vacuum leak	- Other

Section 6) *ADDITIONAL TERMS*

Please read the terms and conditions below as they apply to all returns and are in addition to the Agilent Technologies Vacuum Product Division – Products and Services Terms of Sale.

- Customer is responsible for the freight charges for the returning product. Return shipments must comply with all applicable **Shipping Regulations** (IATA, DOT, etc.) and carrier requirements.
- Customers receiving an Advance Exchange product agree to return the defective, rebuildable part to Agilent Technologies **within 15 business days**. Failure to do so, or returning a non-rebuildable part (crashed), will result in an invoice for the non-returned/non-rebuildable part.
- Returns for credit toward the purchase of new or refurbished Products are subject to prior Agilent approval and may incur a restocking fee. Please reference the original purchase order number.
- Units returned for evaluation will be evaluated, and a quote for repair will be issued. If you choose to have the unit repaired, the cost of the evaluation will be deducted from the final repair pricing. A Purchase Order for the final repair price should be issued within 3 weeks of quotation date. Units without a Purchase Order for repair will be returned to the customer, and the evaluation fee will be invoiced.
- A Special Cleaning fee will apply to all exposed products per Section 4 of this document.
- If requesting a calibration service, units must be functionally capable of being calibrated.

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